

## A NEW POLYCHÆTE FROM FORMOSAN FRESH-WATER

SADAE TAKAHASI (高橋 定衛)

*Taihoku First Normal School, Formosa*

SIX FIGURES

(Received Feb. 17, 1933)

There seems to have been no record of fresh-water Polychæta from Japan as yet, except a few nereids (*Ceratocephale osawai*<sup>1</sup>, *Nereis japonica*<sup>2</sup>) which were found in brackish water. The species which I am going to describe here belongs to the genus *Lycastis*, and is found abundantly in Tamsui River, north Formosa. In many points it is similar to *Lycastis hawaiiensis* Johnson<sup>3</sup>, but is fairly different from the latter in such important characters as follows:—(1) The structure of prostomium, (2) the length of tentacular cirri and of their basal joints, (3) the length of dorsal cirri, (4) the occurrence of the dorsal bristles and (5) their number. Moreover this is closely related to *Lycastis indica* Southern<sup>4</sup>, but differs from it in the following points:—(1) The structure of prostomium, (2) the arrangement of the eyes and the lenses, (3) coloration of the body, (4) dorsal and ventral cirri of the anterior feet, (5) length of dorsal cirri, (6) the number and kinds of bristles, (7) length of anal cirri and (8) the number of the teeth in the jaw.

The type specimen is preserved in the Zoological Department of Taihoku Imperial University. Here I would like to tender my hearty thanks to Prof. K. Hirasaka of the same University for his advice kindly given to me.

<sup>1</sup> Izuka, A. 1903 Observations on the Japanese Palolo, *Ceratocephale osawai* n. sp. Jour. Coll. Sci. Imp. Univ. Tokyo, vol. 18. art. 11.

<sup>2</sup> Izuka, A. 1908 On the breeding habit and development of *Nereis japonica* n. sp. Ann. Zool. Japon. vol. 6. Part. 4.

<sup>3</sup> Johnson, H. P. 1903 Fresh-water Nereids from the Pacific coast and Hawaii with remarks on fresh-water Polychaeta in general. Mark Anniversary Volume, Art. 10., Cambridge.

<sup>4</sup> Southern, R. 1921 Fauna of the Chilka Lake. Polychaeta of the Chilka Lake and also of fresh and brackish waters in other parts of India. Mem. Ind. Mus. vol. 5. no. 8.

*Lycastis longicirris* sp. nov.

*Description*.—The living worm is reddish yellow in colour, the reddish hue being a result of the highly developed vascular system under the yellow epithelial pigment. Usually, the postero-dorsal surface and dorsal cirri are yellowish green, especially in the male, but the colour changes into milky white by the maturation of its gonads.

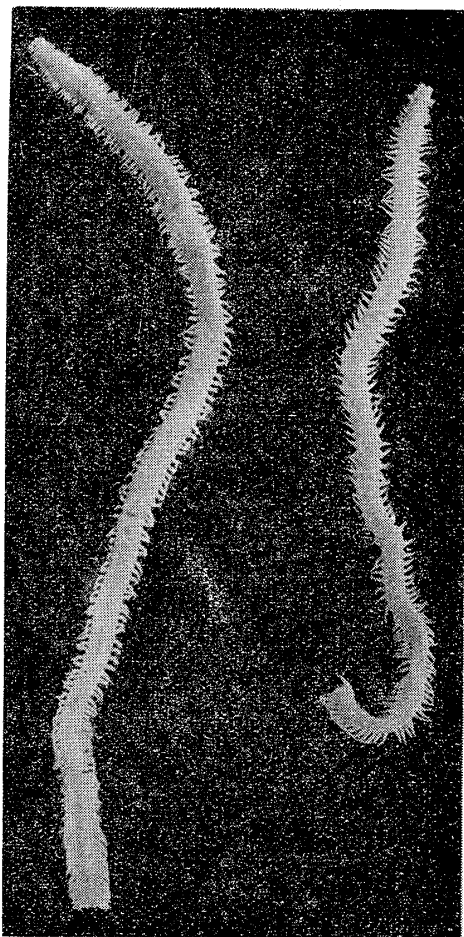


Fig. 1.—*Lycastis longicirris* sp. nov.  
Male (left) and female (right).  $\times \frac{3}{2}$

The body is long and slender, tapering gradually toward the posterior end (fig. 1). The larger specimens measure 80–120 mm. in length and 1–2 mm. in breadth, excluding parapodia, at about 40th segment. The segments of the full-grown worm are usually 100–180 in number. The trunk of the matured worm is so turgid as to be cylindrical in section, and its epithelium is made apt to burst, hence the discharging capacity of gonads is increased naturally. But a few segments in the posteriormost part are flattened. The worm in the asexual phase has a flat ventral surface, with a longitudinal shallow groove on it, while the dorsal side is convex.

The prostomium is very broad in proportion to its length (2:1). A shallow transverse groove divides the prostomium into anterior and posterior sections, and the anterior one is again divided into two lateral halves by a shallow median groove (fig. 2). Two pairs of eyes are found on the posterior section of the prostomium, the posterior pair being situated inside of the anterior, but occasionally all

The prostomium is very broad in proportion to its length (2:1). A shallow

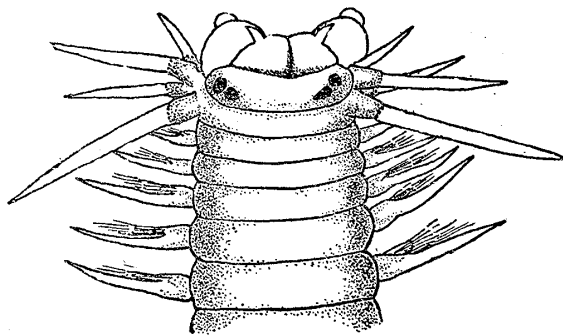


Fig. 2.—Dorsal view of anterior extremity.  $\times 20$ .

the eyes are arranged in one transverse row. Rarely, there is another eye on one side only. Usually these eyes consist of many black spots which are not so closely assembled and are destitute of lens, so that the outlines of these eyes are not always round. The tentacles are extremely short and horn-shaped. The palpi are very short and stout, with terminal articles.

The peristomium is as long as the next segment, but when seen from the ventral side it is far longer than it. Tentacular cirri are comparatively long, rapidly tapering to the tip. The longest pair of them reach the 5th or 8th segment, when they are laid back along the body. Even the shortest one surpasses the tip of the palpus. The basal segment is short, connected with the main part usually by an indistinct joint.

The proboscis is destitute of paragnathi and papillæ entirely, but is provided with jaws of the usual form armed with 7 or 8 teeth generally.

The parapodia (feet) (fig. 3) are lacking ligules. Dorsal ramus is absent, but it is indicated by a dorsal aciculum. The foot is conical and ends in a "retractile tip," of which H. P. Johnson said as a characteristic feature in the foot of *Lycastis* and *Lycastoides*, but we can observe the same feature in other Formosan nereids also, though not quite distinctly.

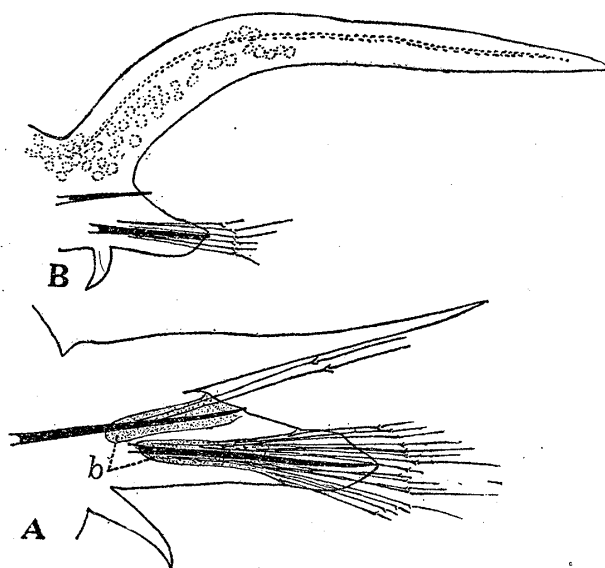


Fig. 3.—18th (A) and 10th parapodium (B) of posterior region. Posterior view. The spots coloured yellowish green are shown by dotted circles, and the main large blood-vessels of the dorsal cirrus by dotted lines.  $\times 46$ .

The dorsal cirri are conical in the anterior part and flattened posteriorly. In the former case it extends slightly beyond the tips of bristles, but in the latter it is so enlarged as the bristles cannot be seen from dorsum at all. In such a case the dorsal cirrus is twice as long as the breadth of its trunk (fig. 4). The enormous length of dorsal cirri is the most remarkable character of this species, hence the specific name. The ventral cirrus is short, being of about half the length of the extruded foot (ventral ramus).

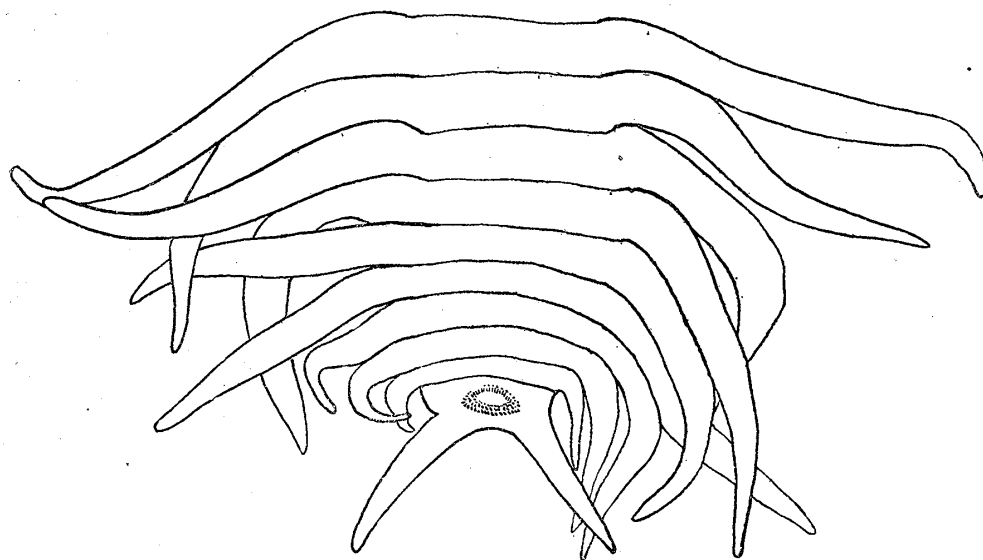


Fig. 4.—Posterior extremity of male. Dorsal view.  $\times 46$ .

The bristles usually occur on both sides, above and below the ventral aciculum. They number 15–25 in the anterior and middle, 5–10 in the posterior parts of the body.

In an anterior segment, the dorsal aciculum is produced with 1 or 2 bristles, from a “bed” (fig. 3, A, *b*) separated from that of the ventral bristles. And the dorsal “bed” is farther apart from the base of the dorsal aciculum than the other. In some cases this dorsal “bed” lacks bristles.

The bristles (fig. 5, *a-e*) are usually black in colour, but sometimes they are colourless or nearly opaque and brownish yellow. Those in the anterior segment are as follows:—Dorsal “bed” ... *Homogomph spinigers* without comb (1 or 2); Ventral “bed” ... *Homogomph spinigers* without comb (a few), *homogomph* and *heterogomph spinigers* (many), and two kinds of *heterogomph falcigers* (many).

All the bristles and ventral aciculum are usually moved by some retractors, while dorsal aciculum is in no way movable, as it lacks retractors in its base. The colour of aciculum is black, but in its basal portion it is almost brownish yellow.

Anal segment (fig. 4) is a little shorter than the preceding segments put together and not broader than the latter. Anal cirri are somewhat thick and stout, differing from those of dorsal cirri.

*Habits.*—The worm occurs in great abundance in Tam-sui River, at distances of about 10-20 miles from its mouth. Some more are found also in the tributaries, canals and ditches that empty into the river. Moreover we can find them occasionally in the rice- or lotus-field near Tai-hoku, which is usually 2 or 3 metres high above the level of the river. In all cases, they are found in muddy or fine-sandy soil within the depth of three inches, and 90 per cent. of the worms are burrowing under stones or pieces of wood, showing no entrances of these burrows on the surface of mud. In the river-mouth or sea we cannot find them at all. I have not yet collected them in any other part of Formosa.

They mature during the months of June and July, but neither their external characters show any change nor do they swarm. The male is somewhat longer, larger and more active than the female. In the sexual phase the mode of swimming is very strange, but in the asexual phase the worm crawls or burrows. The movement is effected by the use of parapodia, aided by their bristles, and it is necessary

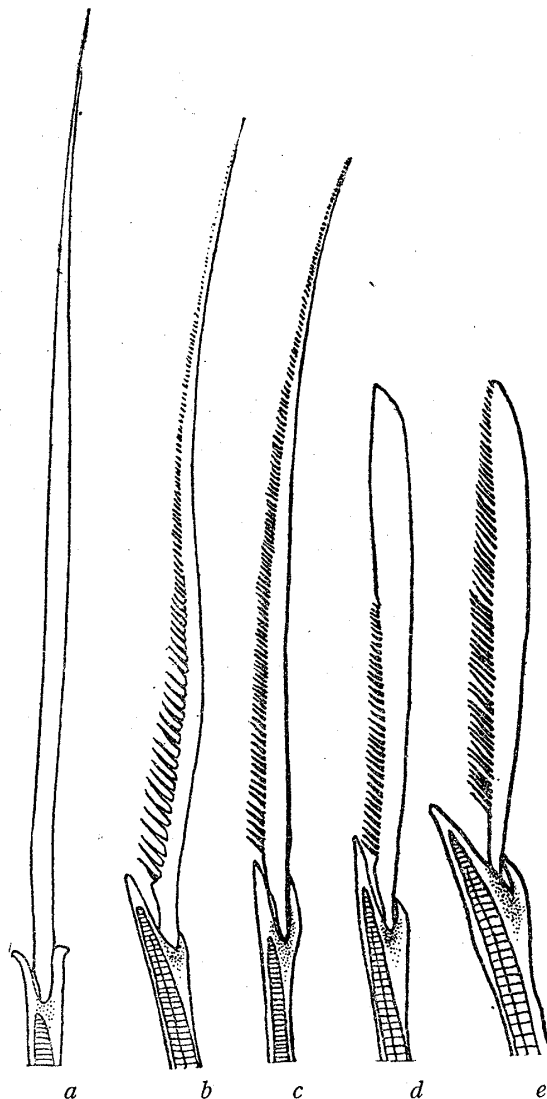


Fig. 5.—Profiles of bristles. *a*, homogomph spiniger without comb; *b*, *c*, heterogomph spinigers; *d*, *e*, heterogomph fal-cigers.  $\times 700$ .

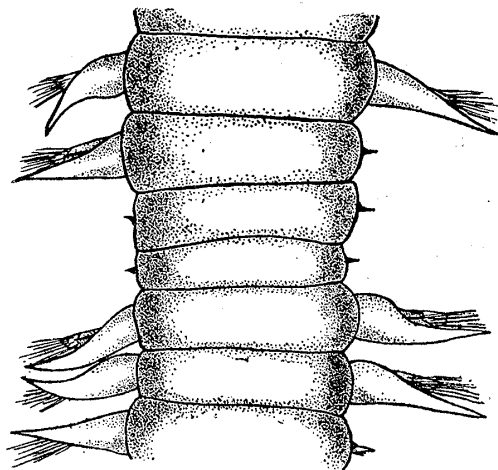


Fig. 6.—Showing regeneration of parapodia in anterior segments of body. Dorsal view.  $\times 30$ .

also to protrude the proboscis when the worm moves in the mud. We found many regenerated worms, where the epithelium is very thin and fragile, and the body easily torn off at any part (fig. 6). Such a character does not seem to be common in other nereids.

(Taihoku, February 10, 1933.)